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REVISTELE TEHNICE AGIR

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New developments of drilling in hard and very hard rocks (Continuation of Article in No.5). By M. Stamatiu.

Great progress has been made in the drilling of bore holes in hard or very hard rocks in mines and quarries.

A review is given of the progress made, and the innovations and modern methods which could be used in Rumania are described .

After the classification of the rocks according to their suitability for drilling (by the method of Protodiakonov, Sukhanov, etc.) and after a study of the methods of drilling bore holes and the tools and machines employed, the author comes to the conclusion that only a pneumatic percussion process can be used. The pneumatic drills give the best results. They have a circular or hexagonal cross-section and are made of Carbon-Manganese steel alloy.

The other conclusions of the article refer to the quality of the tool materials, the use of metallic carbide (Cobalt and Tungsten) alloys for drill heads, and the possibilities of increasing the drilling speed and reducing the cost of the operations.

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A new method for extracting sulfur and metals from gold-containing pyrites.

By V. Oghina

Rumania treats 25,000 tons of gold-containing pyrites per year. These pyrites contain 36% of iron, all of which is lost in the waste, while the sulfurm is utilized only in the form of sulfur dioxide and sulfuric acid, and not as pure sulfur which is needed for the chemical industry and for wine-growing.

The recovery of iron and the extraction of sulfur are of great importance for industry. A new process is described here, in which the classical process is replaced by calcination and fusion in a sulfuric acid furnace. A pilot plant with a capacity of 1000 tons of pyrites per day has been constructed.

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A nitric acid process for the production of cellulose

By M.A. Baranov

The need for high-grade cellulose has led to the extended use of the method of treating wood with nitric acid. This method, known since the 19th Century, could only be put to actual use after a large chemical industry had been set upm and high-grade acid-resistant steel had been developed.

The stages of production are discussed: The treating of the wood, the cooking of the cellulose, its purification, chlorination, cold refining, bleaching and drying. The cellulose obtained by this method is mf the same as that obtained from cotton lint, with a content of alpha-cellulose of 98 to 99%, 0.11 % ashes, and a copper index of 0.6.

Specific material and power consumption figures for the manufacture of 1 ton of completely dry beechwood cellulose are given.

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General description of the Resita-Anina-Nera-Danube Coal field

By V. Cioban

This coal field constitutes a distinct geographical and geological unit. It is made up of mountains of average height of up to 1200 m, in parallel ranges, and divided into three geographical units by two valleys. The first one includes the mines of Secul, Doman, and Lupac, the second unit contains the Anina- Steierdorf coal field, the third unit is of only secondary importance.

The coal-bearing geological formations belong to the Carbon and Lias strata. The tectonics of the region are characterized by folds, depressions, overfolds, foliate layers, longitudinal and transversal faults, and intrusions of eruptive rock.

The mining installations and the coal deposits are as follows:

1. The Secul mine, with four layers of bituminous coal, very well suited for the production of metallurgical coke. Only two layers are mined. The mine has two shafts. The principal production level is at a depth of 608 m.

2. The Doman mine exploits two layers of coal of the Lower Lias. It produces solid non-bituminous coal whose quality varies from one vein to the next.

The mine is characterized by the occurence of fire-damp which renders mining dangerous. The mine has two shafts. It is 519 m deep.

3. The Steierdorf - Anina mines exploit two localized coal deposits of the Lower Lias. As for tectonics, the mine has an asymmetric anticlinal fold with an almost elliptic horizontal section. The coal layers, limited by the slopes of the anticline, are of solid bituminous coal which is excellently suited for the production of metalluggical coke.

The mine contains underground layers of water, the deposits are under high stress, there are emanations and eruptions of fire-damp, and spontaneous combustion of the coal occurs occasionally.

The coal is mined in six shafts, ranging from 458 m to 900 m in depth.

The description concludes with a comparison of this [illegible] coal field with the other Rumanian coal fields, viz. the Brasov field, the coal deposits in the Southern Carpathians and in the Banat.